The Swedish experience

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Abstract

Total tobacco consumption is as high in Sweden as in comparable countries, but Sweden has the lowest smoke-related mortality. The high consumption of snus is likely to have contributed to this phenomenon and in the public health debate it is often referred to as the Swedish experience. It is a fairly recent development: for most of the 20th century Swedish tobacco use was similar to that of other western countries with cigarettes as the product of choice. It has only been since the last third of the century that traditional Swedish snus has made a comeback. Starting in the early 1990s researchers have documented how the switch from cigarettes to snus has impacted disease rates and benefited the public health of Sweden.

The basis of the Swedish experience scientific claims is rooted in several published research articles, most of which derive information from a handful of key cohort studies as well as national public health statistics. The findings and recommendations from the scientific community about snus have not been identical, although the vast risk differential between using snus and smoking is today widely accepted and communicated.

Snus is regulated is Sweden as a food product: and this has shaped how it is viewed by governmental authorities; has influenced how the product is perceived by the public; and has impacted Swedish Match's product stewardship commitment and marketing approach.

Although government and industry have played a significant role in the Swedish experience, neither can claim their actions caused the movement away from cigarettes to snus. Increasing knowledge about health risk of cigarettes and the ensuing societal efforts to decrease smoking were probably the main driving forces. The anti-smoking message gained traction through word of mouth, neighbor talking to neighbor, family members sharing experiences. The message "smoking is harmful" was widely accepted in western countries but in Sweden it was enhanced by the idea that snus offered a less risky method of using tobacco.

A related fundamental message widely accepted by Swedes is that snus is an entirely different product than cigarettes: they are treated separately and differently in surveys, public health goals, and product labels. Industry has greatly contributed to this view by marketing snus as a "traditional" product with historic brands. This is in contrast to some current marketing approaches in the US where companies have adopted cigarette brands for snus products, possibly implying that the two products co-exist in a tobacco usage pattern.

Swedish public health authorities have been quite precautionary in characterizing snus as a harmful product; but they have always been careful not to equate snus with cigarettes, and have presented the facts regarding tobacco use and resulting disease. Elected officials acknowledge that snus is hazardous but question, and seek changes, regarding the current EU ban on a traditional Swedish product that is significantly less harmful that cigarettes. Industry, most notably Swedish Match, markets snus, but does so in a responsible manner and continuously strives to produce as clean a product as possible. These circumstances are representative of, and provide a context for the Swedish experience.

Introduction

Total tobacco consumption is as high in Sweden as in comparable countries, but Sweden has the lowest smoke-related deaths, which is likely to be explained by the high consumption of snus. In the public health debate this phenomenon is referred to as the "Swedish experience." The key facts are: comparable national tobacco use rates, low cigarette use rates and higher rates of snus use (especially among males), and lower rates of smoking-related diseases; resulting in reduced risk to the Swedish population.

In 2007, 14 percent of adult Swedes smoked, while smoking in the other European Union (EU) countries varied between 21 and 44 percent (WHO 2008 and national authorities). The prevalence of lung cancer and oral cancer in Sweden is substantially lower than in other comparable countries. Swedish males' tobacco use is particularly striking: in 2007, 12 percent smoked on a daily basis compared to 19 percent that consumed snus. Most importantly, the prevalence of lung cancer and oral cancer is also significantly lower among Swedish males. Among Swedish women, 16 percent smoked on a daily basis, while 4 percent used snus. (FHI 2007).

Several researchers (e.g. Foulds et al. 2003, Henningfield and Fagerström 2001, Rodu et al. 2003) have suggested that the low prevalence of smoking in Sweden is related to factors such as the use of snus. Recently, researchers have attempted to quantify the difference in risks associated with cigarette smoking and the use of snus. One quantitative analysis provided evidence that the health risks associated with snus are significantly lower than those associated with smoking for the following outcomes: lung cancer, oral cancer, gastric cancer, cardiovascular disease, and all-cause mortality (Roth et al. 2005). An expert panel concluded that mortality associated with use of low-nitrosamine smokefree products (such as snus) is at least 90% lower than that associated with smoking (Levy et al. 2004).

The Swedish experience, as defined by these statistics and researchers, is a fairly recent development. For most of the 20th century Swedish tobacco use was similar to that of other western countries: cigarettes were the product of choice, with resulting high smoking-related disease rates. It has only been since the last third of the century that snus—the traditional tobacco product of Sweden, defined as a moist to semi-moist oral product made from finely ground, mostly air-cured, tobacco and other ingredients -- has made a comeback; and it has only been since the early 1990s that researchers have

documented how the return to snus use has impacted disease rates and benefited the public health of Sweden. The attention paid to the rising consumption of snus has led to a significant increase in tobacco-related research focusing on the health effects of snus as compared to smoking products. Thus, the Swedish experience will continue to be documented and the research will be of value globally.

The tobacco use statistics and the scientific analysis are compelling; but to be of maximum benefit the information must be placed in a context that is of use to the TPSAC in providing scientific advice, and ultimately to the Center for Tobacco Products in making regulatory decisions. There are fundamental questions that must be addressed: How and why did the Swedish experience occur? Did governmental actions impact tobacco use patterns? Did consumers make conscious health based decisions in switching from cigarettes to snus? How is information about snus communicated to Swedish consumers? How is the product marketed?

Another key question is whether the Swedish experience is transferable to the United States. That is a decision to be made by US authorities, and is not addressed in this paper. However, it is important to describe the Swedish public health and regulatory infrastructure and to provide assurances that the information derived in Sweden is of the highest quality. Sweden is a highly regulated country and its citizens' habits are well documented. This is the case also with tobacco use, as Sweden has continuous national records of tobacco manufacturing and consumption dating back to 1780, older than any other country. Thus, it is not surprising that several seminal tobacco studies of global significance have been conducted in Sweden. The relative homogeneity of the population and the government's historic commitment to monitoring the public health, combined with the unique tobacco use patterns has contributed to Sweden being an excellent laboratory for the study of snus.

Snus has been regulated as a food product in Sweden since 1971, and the National Food Act provides the Swedish Food Agency authority to oversee manufacture, product chemistry and contents declaration compliance. The health effects of snus and other tobacco products are communicated to the public by national public health authorities, local health providers, and other health professionals. Governmental agencies work closely with snus manufacturers in regulatory and communication initiatives. Such cooperation is possible because of the relatively small size of Sweden, and due to the fact that one company –Swedish Match— makes 85% of the snus consumed. This allows for a highly developed sense of product stewardship; that has led to the establishment of an industry quality

standard – GothiaTek-- that seeks to continuously reduce or eliminate harmful components in snus and increase product knowledge and impact on users.

Swedish Match is sincere in its commitment to product stewardship, and GothiaTek is unique in the tobacco industry. The company prides itself on being a good corporate citizen and a leader in tobacco research and communication. However, it is a for-profit company and marketing is necessary to maintain sales. The company does not market snus as a harm reduction product; however, it does promote the fact that its products –pursuant to GothiaTek—achieve the highest quality standards. It can be assumed that consumers who care about ingredients, manufacturing process, and other elements of GothiaTek are also attuned to the relative health impacts of smoking and nonsmoking products.

Although government and industry have played a significant role in the Swedish experience, neither can claim their actions caused the movement away from cigarettes to snus. It is clear that increasing knowledge about health risk of cigarettes and the ensuing societal efforts to decrease smoking were the driving force behind the Swedish experience. This message (smoking is harmful) was widely accepted in western countries; however, in Sweden the message was enhanced by the idea that snus offered a less risky method of using tobacco. The message gained traction through word of mouth, neighbor talking to neighbor, family members sharing experiences. It has been said that everyone in Sweden knows someone who has switched from cigarettes to snus. Such personal exchanges were likely supported by media articles, advice from health providers, and the ingrained Swedish culture. Swedes are typically health conscious; they exercise, eat right, and are aware of the health impacts of alcohol, drugs and tobacco. Thus, they are inclined to switch from cigarettes to snus, particularly when their views are supported by friends, colleagues and others.

Public health officials have been very cautious about promoting snus as a alternative to smoking. However, in 2006 the Swedish National Board of Health (Socialstyelsen) issued a health status report that contained a section on snus, providing detailed information on use patterns and socio-economic factors (Folkhälsorapport 2005). The report also addressed health implications and whether snus is a smoke cessation aid or whether it is a gateway to smoking. The report noted that there is general agreement that the health hazards of snus are minor compared with those of smoking. The report fell well short of promoting snus use, and clearly states that snus is not harmless, but for many Swedish

citizens the report provided validation for what they had heard from friends and family or read in the mainstream press.

This paper seeks to describe the Swedish experience: it addresses tobacco use statistics and scientific literature, but the primary focus is on the key contextual questions of why and how the experience occurred; and how government, industry, and the public health infrastructure contributed to the phenomenon. The paper starts with an overview of the key cohort studies from which much of the research on the Swedish experience is derived. A description of the significant public health and regulatory actions is also provided, and Swedish Match's contribution to the Swedish experience is presented.

It should be noted that the many aspects of the Swedish experience are increasing being shared by neighboring Norway. The Norwegian experience is a much more recent development; since the mid 1990s, primarily younger cigarette smokers have switched to snus. The Norwegian Institute for Alcohol and Drug Research has conducted compelling research and issued policy analysis regarding tobacco harm reduction products, but because of this being a fairly recent development, its impact on the public health statistics have not yet been documented (Lund 2009).

Scandinavian Cohorts and Resulting Publications

The basis of the Swedish experience scientific claims is rooted in several published research articles, most of which derive information from a handful of key cohort studies of Swedish and Scandinavian groups. Like all cohort studies, these have their strengths and weaknesses; including varying size, participation rates, and regional characteristics. However, the studies are considered to be the most useful source of information globally for study of Swedish snus, and researchers from academia, government, and industry have relied upon the data to conduct seminal research.

One of the most significant cohorts applicable to snus research is the Swedish Construction Industry's Organization for Working Environment Safety and Health study that collected data over a 24 year period (1969-1993). The primary strengths of the study was the large size (up to over 340,000 men depending on exclusion criteria), the high prevalence of snus use (28%), and the large number of never-smoking snus users. There were of course limitations in the study, most notably ambiguities in the coding of smoking status in the early years of data collection.

Another fundamental cohort study is the Northern Sweden Monitoring of Trends and Determinants in Cardiovascular Disease (MONICA) Project that collected data on daily use of smokeless tobacco (among other things) among adults in the two most northern counties of Sweden over a 13 year period (Eliasson et al. 1995). The strengths of the study include the accurate and consistent definitions of tobacco use, standardized data collection, and a high percentage of participants involved in a follow-up examination. A limitation of the study –and most cohort studies-- is that change in tobacco status could have occurred at anytime during the study and follow-up period.

The Children's Smoking and Environment in Stockholm County, referred to as the BROMS cohort, surveyed over 3000 fifth graders during the 1997-1998 school year and conducted annual follow-up survey until 2005 (Galanti et al. 2001). The children were asked a series of questions relating to snuff (Swedish snus) use, including: if they ever tried oral snuff, age at initiation, symptoms at first use, progression to regular use, quit attempts, circumstances of tobacco use, and preferred brands. The data formed the basis of several significant articles, including Galanti in 2001 and 2008, Rosendahl in 2003 and Post in 2005.

The Swedish Twins Registry cohort is the largest population-based twin registry in the world and has been the basis of several significant research studies including Hansson et al. 2009. The study population is representative of the general Swedish population; and controls for many important potential confounders (age, smoking status, diabetes, high blood pressure, high cholesterol). Other key studies include the Malmö Diet and Cancer Cohort, two different Uppsala County Cohorts, Swedish Annual Level-of-Living survey and Swedish Survey of Living Conditions, Swedish Birth Registry, and the Northern Swedish Cohort.

Numerous scientific articles have been published based on these and other Scandinavian cohorts; however, as is often the case with science, the authors arrive at slightly different conclusions and may characterize the strengths and weaknesses of the cohorts differently. This may be the case even within the same academic institution. For example, the Karolinska Institute (KI), is Sweden's premier medical research institution, and among the best known and respected in the world. For several years a group of researchers in the KI's Department of Medical Epidemiology and Biostatistics has published numerous studies of the health risks related to snus use. The KI studies have profoundly influenced regulatory actions all over the world. Perhaps the best known are based on the above referenced Swedish

Construction Worker cohort that served as the basis for epidemiologic follow-up studies investigating associations between many risk factors and diseases.

Swedish academic institutions, governmental agencies and non-profit foundations have a long-standing commitment to conduct and fund tobacco-related research. Most of this research is now focused on snus, reflecting Swedish tobacco use patterns. The Swedish Construction Worker study and other KI initiatives have generated numerous articles and analysis and have been instrumental in the development of national policy. KI researchers have advised governmental decision-makers and served in senior governmental leadership positions. However, the findings and recommendations of KI researchers are not identical; a variety of views –often based on the same scientific information – have been presented in articles and communicated to governmental decision-makers. In fact, it has been noted that the policies of the Swedish public health agencies vary depending on which KI researcher is providing advice or working for the agency.

Swedish Public Health and Tobacco Use

Sweden has a long history of organized public health policy and practice at the national, regional and local levels. In 2003, the government adopted a comprehensive national public health policy that consists of eleven objectives addressing the most important determinants of health. The overarching aim was: "'to create social conditions that will ensure good health, on equal terms, for the entire population". The objectives- which include "Tobacco, alcohol, illicit drugs, doping and gambling" --are based on the determinants of health, which enables evaluation of progress and supports political decision-making (FHI 2009).

In 2007 a *Renewed National Public Health Policy* bill *(2007/08:110)* was enacted focusing on individual choice and responsibility and included the goal of reducing the use of tobacco (Wamala 2010). Following passage of the bill the National Institute of Public Health (SNIPH) was charged with developing a national strategy for tobacco prevention. The strategy identifies areas for further work regarding tobacco prevention, including national smoking cessation efforts. The primary milestones include the goal of by 2014 reducing by half the number of young people under 18 who start smoking or using snus.

The Swedish National Board of Health and Welfare (Socialstyrelsen) produces a Public Health Policy Report every 5 years. The report issued on 2005 (issued in 2006) contained a section on snus that is

representative of the type of data collected and the manner in which snus use risk is often presented in Sweden. The report presents detailed information regarding use patterns; for example snus is used by slightly more than 23% of the men and less than 3% of women. Furthermore, the percentage of the population aged 16-84 among whom snus is used on a daily basis rose from 10.3 to 13.0 percent between 1996/97 and 2004. The report presents detailed socio-economic data; for example snus use is far more common for people born in Sweden, men aged 25-44, and unskilled workers and single men with children.

The 2006 report also addresses health implications and the ongoing debate about whether snus is a smoke cessation aid or whether it is a gateway to smoking. It notes that there is general agreement that the health hazards of snus are minor compared with those of smoking. The report also cites 2006 era studies showing that snus does not increase the risk of myocardial infarction morbidity. Conversely, the report also cites the scientific literature from the Karolinska Institute indicating that snus may increase the risk of pancreatic cancer and cause injury to unborn and newborn babies. The report states that the scientific source material is not always strong, but the assumption should always be that snus is not harmless.

When addressing smoking cessation the report poses the question – but leaves unanswered- whether public health officials should suggest to smokers they switch to snus. The report cites data from the Sweden's Living Condition Surveys which indicates that for every person who progressed from snus to smoking, there were four who switched from smoking to snus. It concludes that apparently many people have used snus as a means to give up smoking, and that the risk young adults will progress from snus to smoking is far smaller than the risk that a non-smoker will take up smoking.

The 2005 report contributed to what most researchers and the general public had already accepted: snus primarily acts as a gateway <u>from</u> smoking, not the opposite. For several years, and certainly since research based on the BROMS (Children's Smoking and Environment in Stockholm County) cohort were published, it has been widely agreed that cigarettes—not snus—was the predominate gateway to smoking among adolescents (Galanti et al. 2008).

The Public Debate

The Swedish experience would not be possible if it were not for the fact that there has been, and continues to be, a public debate regarding the merits of snus as a harm reduction product. In the past decade –2000 to 2009- there were 5000 articles in the Swedish print media that addressed snus. The articles appeared in a wide range of publications, from technical journals to daily newspapers and magazines. They were of varying degrees of accuracy and credibility, but they undoubtedly had a significant risk communication impact.

The articles reach a varied audience -- from health professionals to tobacco product consumers -- and addresed issues of relevance to their intended audiences. For example there was a recent exchange of views in *Läkartidningen*, the official journal of the Swedish Medical Association. An editorial written by Robert Nilsson, Professor, Institute for Genetics, Microbiology and Toxicology, Stockholm University, asserted that public authorities were being overly cautious in not promoting snus as an alternative to smoking. Two prominent government officials -- Dr. Sarah Wamala, Director General of the National Institute of Public Health and Lars-Erik Holm, Director General of the National Board of Health and Welfare- responded with an editorial presenting their views, stating that public "authorities are obliged to inform (the public) about risks (of snus)."

The exchange featured in *Läkartidningen* is significant because it demonstrates the importance of the modified risk debate to the Swedish public health community. Different views were expressed in the exchange, and the differences will continue to be debated, undoubtedly impacting how health professionals communicate with patients regarding the health effects of snus.

Snus-related articles also appear in financial-oriented publications and the business sections of newspapers and magazines. The focus of these articles is the European Union (EU) directives that govern the manufacture, presentation and sale of tobacco products. The EU directive bans the sale of snus in Europe; but Sweden was exempted from the directive as a condition of joining the EU. The EU ban has a significant impact on the Swedish economy, since a leading company –Swedish Match— cannot sell its products in EU member countries. Many in the tobacco control community view the EU ban as ill advised public health policy (why allow cigarettes yet ban the much less risky snus?) In Sweden there is particular objection, including by governmental authorities and the business community, giving

rise to considerable media attention. Although the EU ban–related articles focus on the need for Swedish officials to be more vigilant in pressing the EU to change the ban, they do typically address the relative health impact of cigarettes, thereby providing yet another mention of the concept of harm reduction.

Articles in the popular press are understandably more oriented to the general public and at time can be rather sensational. For example, a February 2011 article on snus in *Svenska Dagbladet*, one of Sweden's leading newspapers, opened with the sentence: "A spectacular snuff war is breaking out in Sweden." However, the article did present the fundamentals of harm reduction and describe how there can be differences of opinion between past and present administrations, as well as within the current government, particularly between the Minister of Trade and the public health director generals. This article and others like it indicate the level of interest in the health effects of snus issue, and the need for – and willingness to conduct -- continued education and research.

Snus Regulated as Food Product and GothiaTek

The fact that snus is regulated as a food product in Sweden is representative of how snus is viewed by governmental authorities. This regulatory approach has also influenced how the product is perceived by the public, and has impacted Swedish Match's product stewardship commitment and its marketing approach.

The Swedish government has historically been actively involved in the manufacturing of snus; in fact for much of the 20th century (1914-1961) there was a Swedish state-owned tobacco monopoly that controlled the production of snus. During the 1960s the monopoly was gradually dismantled, and by the 1990s the state-owned company had evolved into what is now Swedish Match. The unprecedented involvement of the government in snus manufacturing quite naturally has facilitated a collaborative effort with industry.

Snus and chewing tobacco are currently governed by the National Food Act and the Swedish Food Agency oversees manufacture, product chemistry and contents declaration compliance. The 2006 version of the Swedish Food Act defined snus as a food product and is subject to regulations pertaining to food.

In 2010 the Swedish Food Agency developed more comprehensive and precise regulations for snus products (Dotter 2010). The proposed regulations build on the concept that snus is a food product and is subject to provisions that apply to all food including rules regarding additives, flavorings, new ingredients, vitamins, mineral substances, water, labeling, hygiene, hazard analysis and critical control points, traceability, and contaminants. The Agency's decision to propose more explicit snus regulations is a bold and confident action; given that EU directives govern the manufacture, presentation and sale of tobacco products. Thus, by proposing the new regulations the Agency can be viewed as stating that authorities in Sweden – the historic home of snus—are quite capable of regulating the product in an effective yet collaborative and progressive manner.

The fact that snus is regulated as a food product is unlikely to be a principal factor in consumers deciding to use snus, but it could contribute to the perception that snus is more "natural" or "organic" than other smokeless products and certainly cigarettes. The food product analogy is used by Swedish Match in describing products and the GothiaTek standard; the opening sentences in the GothiaTek page of the company website states: "Swedish snus differs substantially from most other smokefree tobacco products worldwide. The manufacturing falls under the Swedish Food Act and additives used are approved for use in food." (Swedish Match website)

The Agency has stated that the regulations proposed in 2010 are based on "current practice." Swedish Match retains an 85% share of the snus market in Sweden; therefore, it can be assumed the proposed regulations largely codify the ongoing relationship between the company and the Agency. The Swedish Match-developed quality standard GothiaTek is central to that relationship.

GothiaTek is a voluntary, comprehensive quality standard that came about through collaboration between scientists at the Swedish Food Agency and Swedish Match, who were both seeking quality assurance and quality control in the production of snus. In the later part of the 20th century, government and industry engaged in the scientific and public debates about the health effects of tobacco products in general and, more specifically, the role of potential toxicants and agrochemical residues in smokeless tobacco products. As a result, the routine monitoring of the chemical properties of snus was greatly expanded; assays of tobacco-specific nitosamines (TSNAs) were introduced in 1984, and extensive, annual chemical testing of all snus brands started in 1988.

Today GothiaTek is a comprehensive program consisting of a series of standards addressing constituents, the manufacturing standard, and required consumer information. GothiaTek reflects the latest in toxicological science and production techniques which has resulted in lower than ever toxicant levels. The information derived through this collaborative effort of the government and the company, combined with an improved scientific base in general, improves the opportunity for science-based decision making.

GothiaTek and the Swedish experience are intertwined, and both are important to understanding and regulating harm reduction. A current challenge for GothiaTek is to develop a risk-based process for assessing and communicating health risk posed by snus use. There is increasing interest globally for a risk assessment approach to be applied to tobacco products. A risk assessment provides scientific input into the decision-making process, allowing a manager to make decisions regarding achievable and acceptable risk. The decision-maker must consider how actions will reduce risk to the individual as well as to the impacted population.

The risk assessment process is generally considered to consist of hazard identification, dose-response assessment, exposure assessment, and risk characterization. These steps are dependent on quality toxicological and exposure information. The toxicological data base can be developed in the laboratory conducting in-vivo and on-vitro studies, but exposure information is harder to come by and ideally is provided by long-term epidemiological studies. However, as previously noted, in Sweden there is an abundance of epidemiological studies that document tobacco use in general and snus use in particular.

The existence of snus exposure data and the availability of toxicological information make for a compelling case to develop and apply a risk assessment approach under a GothiaTek framework. Ideally this is conducted in concert with governmental agencies that rely upon a risk based approach in making regulatory decisions.

Industry Communication of the Swedish Experience

As previously noted, Swedish Match sells 85% of the snus in Sweden, so the company is largely responsible for industry communication of harm reduction and the Swedish experience. The company communicates with consumers primarily through its website which features a combination of science

and business-related information. The science portion of the website includes sections on snus and health, harm reduction, research on snus, tobacco use in Sweden, and GothiaTek.

The information communicated by Swedish Match is intended to compliment that provided by other sources, including government, academia, NGOs, as well as family and friends. Industry-provided information has an important role, but it is limited due to understandable public concerns about the credibility of such information. Accordingly, the Swedish Match website focuses on the presentation of factual, well referenced information, and only presents analysis and conclusions from credible sources such as the World Health Organization, and the Swedish National Board of Health and Welfare.

The web site is representative of Swedish Match's approach to communicating harm reduction and health effect information: statements must be backed up by research and should be consistent with findings stated by governmental agencies and the scientific community. Certainly the web site is "pro snus," but the company is careful to make the site science, not advocacy- based. This approach is correct from an ethical as well as business standpoint. If Swedish Match overstates its case it runs the risk of losing all credibility with consumers and thereby not serving any useful purpose.

For example, the web site does not state that snus is a tobacco cessation product (and snus is not marketed as a smoking cessation aid.) However, there are statements that "several scientific studies" have indicated that Swedish Match products "play an important role to achieve harm reduction." Tobacco harm reduction is defined as a strategy for "individuals who cannot or are not willing to give up smoking (but) can reduce their health risks by switching to a smokefree tobacco product, such as snus."

Obviously Swedish Match hopes that this approach works; that consumers rely upon the website as a complimentary information source and appreciates the way the information is presented. This approach is likely to work best among consumers who value, and can make decisions based on scientific information. These consumers –educated, typically economically well established—may also be health conscious, and appreciate the GothiaTek goal of using the best available raw materials and manufacturing practices.

Conclusion

The Swedish tobacco experience is well documented and is based on a solid body of evidence collected in a scientifically sound manner, primarily over the past forty years. Researchers and policy analysts

may come to slightly different conclusions, but all agree with the basic facts that national tobacco use rates are comparable to other western countries, but in Sweden there is much lower cigarette use rates and much higher rates of snus use (especially among males), and lower rates of smoking-related diseases; resulting in reduced risk to the Swedish population.

The Swedish experience began in the 1970s, as the public became fully aware of the dangers of smoking and many consumers switched to snus as a means of reducing their risk. However, the switch from smoking to snus, and the resulting health impacts, was not well documented until the 1990s when research based on Swedish cohorts was conducted and published in scientific journals.

Snus has been used in the country since the 1800s and is an accepted part of the Swedish culture. For many years it was the predominant form of tobacco use, but by the 1950s it had lost its market share to cigarettes. However, at the time when consumers were acknowledging the dangers of cigarettes, many decided to turn to snus, a traditional product they believed presented much less health risk. During this timeframe –1970s to the 1990s—many smokers simply quit using tobacco. But the tobacco use statistics also indicate that many smokers turned to snus. It can be reasonably assumed that many smokers were able to quit cigarettes because of the alternative presented by a known and culturally accepted product.

Government, health professionals, academia, media, and industry all likely contributed to the Swedish public's tobacco knowledge; and the belief that snus, although harmful, is significantly less risky that cigarettes. However, snus was never promoted or marketed as a harm reduction or smoking cessation product: not by industry and certainly not by government. But the message that snus was less harmful than smoking subtly permeated into the public consciousness through several avenues.

A related fundamental message widely accepted by Swedes is that snus is an entirely different product than cigarettes. Obviously both are tobacco products, but they are treated separately and differently in surveys, public health goals, and product labels. For example, perhaps only in Sweden is there a snus-specific national public health goal. Industry—Swedish Match—has greatly contributed to this view by marketing snus as a "traditional" product with historic brands. Contrast this marketing approach to US companies that have adopted cigarette brands for snus products, possibly implying that the two products co-exist in a tobacco usage pattern.

The Swedish experience is widely viewed as a positive public health story. More than any other country, Sweden has been able to reduce the percentage of smokers, and thereby reduce related diseases. Many factors contributed to this situation, but perhaps most importantly is the underlying sense of reasonableness behind government and industry statements and actions. Public health authorities have been quite precautionary in characterizing snus as a harmful product; but they have always been careful not to equate snus with cigarettes, and have presented the facts regarding tobacco use and resulting disease. Elected officials acknowledge that snus is hazardous but question –and seek changes-- regarding the EU ban on a traditional Swedish product that is significantly less harmful that cigarettes. Industry, most notably Swedish Match, markets snus, but does so in a responsible manner and continuously strives to produce a clean a product as possible. These actions are representative of, and provide a context for the Swedish experience.

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